

REMARKS

Claims 9-12, 14, 17, 19, 20, and 23-52 are pending in this application, with claims 9-12, 23, 27, 32, 37, 47, and 50 being independent. Claims 1-8, 13, 15, 16, 18, 21 and 22 have been canceled, claims 23-45 have been withdrawn, claims 9, 11, 12, 17, and 20 have been amended, and claims 46-52 have been added. Claims 46-52 find support in Figs. 1A, 1B, 2A, and 2B and in pages 5-12 of the specification. No new matter has been added.

Dependent claim 17 has been rejected as being indefinite. Claim 17 has been amended to address the antecedent basis issue raised by the Examiner. Applicants request reconsideration and withdrawal of the rejection of claim 17 in view of this amendment.

Dependent claims 19 and 20 have been noted by the Examiner as being duplicates. In view of this, independent claim 20 has been amended to its original form and further amended to overcome the rejection for indefiniteness submitted by the Examiner in the Office Action of July 5, 2003.

Independent claim 9 has been rejected as being unpatentable over JP 8-162269 in view of Bando (U.S. Patent No. 5,276,999). Claim 9 has also been rejected as being unpatentable over Salerno (U.S. Patent No. 5,396,304) in view of Bando.

Claim 9, as amended, recites a method of manufacturing a light emitting device including forming a light emitting element at a front surface of a substrate and polishing a back surface of the substrate by a chemical mechanical polishing method "to thereby reduce a thickness of the substrate to less than 300 micrometers." Neither JP 8-162269, Salerno, Bando nor any proper combination of the three describes or suggests the polishing of the back surface of the substrate to reduce the thickness of the substrate to less than 300 micrometers.

JP8-162269 discloses a glass substrate 2, which the Examiner equates to the recited substrate. JP8-16229, however, does not describe or suggest "polishing a back surface of the substrate to thereby reduce a thickness of the substrate to less than 300 micrometers," as claimed.

Bando describes a polishing machine that may be used to polish a surface of a glass plate to produce a smooth and flat glass plate (col. 1, lines 6-9). Such a plate may be used in liquid

crystal display devices (col.1, line 10). However, Bando's general suggestion that the polishing machine may be used to provide a smooth and flat glass plate does not suggest or provide motivation for polishing a back surface of the substrate to reduce the thickness to less than 300 micrometers.

Salerno is also deficient as it does not even describe or suggest the polishing of substrates.

For at least these reasons, applicants request reconsideration and withdrawal of the rejection of claim 9.

Independent claim 10 has been rejected as being unpatentable over Salerno in view of Bando. Claim 10 recites a method of manufacturing a light emitting device that includes forming a semiconductor element and a light emitting element that are electrically connected to each other at a front surface of a substrate, polishing a back surface of the substrate by a chemical mechanical polishing method, and bonding a color filter at the polished back surface of the substrate. Applicants respectfully request reconsideration and withdrawal of the rejection of claim 10 because neither Salerno, Bando, nor any proper combination of the two describes or suggests forming a light emitting element that is electrically connected to a semiconductor element at a front surface of a substrate and bonding a color filter at a back surface of the substrate.

The Office Action states that

Salerno discloses a method of manufacturing a light-emitting device comprising,
forming a semiconductor element 1203 and light emitting element 1204 electrically connected to the semiconductor element 1203, both at the front surface of a substrate 1201 (col. 44, lines 17-30; Fig.47);
and
bonding a color filter 1212, wherein the color filter at the back surface of substrate 1201.

Page 3 of Office Action. However, contrary to the Examiner's contention, color filter array 1212, which the examiner equates to the recited color filter, is not at the *back* surface of the the active matrix circuit panel 1201, which the Examiner equates to the recited substrate. Rather, as shown in Fig. 47, color filter array 1212 is located in *front* of active matrix circuit panel 1201. Thus, the electroluminescent active matrix display shown in Fig. 47 does not describe or suggest

forming a light emitting element that is electrically connected to a semiconductor element at a front surface of a substrate and bonding a color filter at a back surface of the substrate.

The Office Action further states that:

This configuration is shown in Fig. 46C with color filter element 1156 bonded to the back of substrate 1142 with the semiconductor elements (the transistor 1146 and pixel electrode 1148) shown on the opposite side of 1142. This configuration is also shown in Fig. 37. The color filter plate 1006 is bonded to the back of the substrate 1008. (See also col. 43, line 46 to col. 46, line 34. See also col. 2, lines 21-52; col. 2, line 66 to col. 3, line 5; col. 6, lines 22-42; col. 8, line 27 to col. 9, line 55.)

Pages 3-4 of Office Action. Notably, Fig. 37 of Salerno is not directed to an electroluminescent active matrix display but rather is directed to a transmissive active matrix display. Similarly, Fig. 46C of Salerno is a process flow illustrating the fabrication of a transmissive active matrix display and does not illustrate a process flow for an electroluminescent active matrix color display. (See col. 12, lines 4-6 and lines 33-35). Accordingly, the only element that emits light in the transmissive active matrix display contemplated by Salerno in reference to Figs. 37 and 46C is the light source 1000. The light source 1000, however, is not electrically connected to the transistor 1146 or pixel element 1148, which the Examiner equates to the recited semiconductor element, at a front surface of oxide layer 1142, which the Examiner equates to the recited substrate. Thus, the transmissive active matrix displays shown in Figs. 37 and 46C do not describe or suggest forming a light emitting element that is electrically connected to a semiconductor element at a front surface of the recited substrate.

The Office Action further states that:

Finally, it is noted that the configurations in selected Salerno embodiments are not limiting and may be combined.

Page 7 of Office Action. However, contrary to the Examiner's assertion, a suggestion or motivation is necessary, either in Salerno or in the knowledge generally available to one of ordinary skill in the art, to combine the teachings in Salerno related to a transmissive active matrix display with the teachings related to an electroluminescent active matrix display. MPEP §2143. The Examiner has not offered any suggestion or motivation to combine the transmissive active matrix display structures and processes described in reference to Figs. 37 and 46C with the

electroluminescent active matrix display structures and processes described in reference to Fig. 47.

Accordingly, Salerno does not describe or suggest forming a light emitting element that is electrically connected to a semiconductor element at a front surface of a substrate and bonding a color filter at a back surface of the substrate, as claimed.

Bando is similarly deficient, as it only describes the polishing of plates and does not describe or suggest a method of manufacturing a light emitting device with the claimed structure.

For at least these reasons, applicants request reconsideration and withdrawal of the rejection of claim 10.

Independent claim 11 has been rejected along with its dependent claim 14 as being unpatentable over Salerno in view of Yoneda (U.S. Patent No. 6,392,340 B2). Claim 11 has been amended to recite forming a plurality of light emitting elements in a matrix form at a front surface of a substrate, bonding a transparent substrate including at least a colored layer at a back surface of the substrate, and bonding a polarization plate to the transparent substrate. Applicants respectfully request reconsideration and withdrawal of this rejection because neither Salerno, Yoneda, nor any combination of the two describes or suggests forming a plurality of light emitting elements in a matrix form at a front surface of a substrate and bonding a polarization plate to a transparent substrate that is bonded at the back surface of the substrate.

Neither Salerno's transmissive active matrix display embodiments (e.g., Fig. 37) nor Salerno's electroluminescent active matrix display embodiments (e.g., Fig. 47) describe or suggest the recited limitations of claim 11. Referring to the transmissive active matrix display embodiments (Fig. 37), Salerno does not describe or suggest that light source 1000, which is referred to by the Examiner as a light emitting element in page 7 of the Office Action, is "a plurality of light emitting elements in a matrix form," as claimed. Rather, light source 1000 is shown as a unitary structure in Fig. 37. Referring to the electroluminescent active matrix display embodiments (Fig. 47), Salerno does not describe or suggest that a transparent substrate comprising at least a colored layer is bonded at a back surface of a substrate and a plurality of light emitting elements are formed at a front surface of the substrate. Moreover, as discussed

above, Salerno provides no suggestion or motivation to combine the described transmissive active matrix display structures and processes with the described electroluminescent active matrix display structures and processes.

Accordingly, Salerno does not describe or suggest forming a plurality of light emitting elements in a matrix form at a front surface of a substrate and bonding a polarization plate to a transparent substrate that is bonded at the back surface of the substrate.

Yoneda describes an active matrix electroluminescent color display apparatus. However, Yoneda does not overcome the deficiencies of Salerno. Yoneda describes forming organic EL elements at a front surface of a substrate 2 and bonding a color filter 22 at the front surface of the substrate 2. However, like Salerno, Yoneda does not describe or suggest forming a plurality of light emitting elements at a front surface of a substrate and bonding a transparent substrate including at least a colored layer at a back surface of the substrate.

For at least the reasons described above, applicants request withdrawal of the rejection of claim 11 and its dependent claim 14.

Independent claim 12 has been rejected along with its dependent claims 19 and 20 as being unpatentable over Salerno in view of Yoneda. Claim 12, as amended, recites a method of manufacturing a light emitting device that includes forming a semiconductor element and a light emitting element that are electrically connected to each other at a front surface of a substrate, bonding a transparent substrate including at least a colored layer at a back surface of the substrate, and bonding a polarization plate to the transparent substrate. Applicants respectfully request reconsideration and withdrawal of this rejection because neither Salerno, Yoneda, nor any combination of the two describe or suggest forming a light emitting element that is electrically connected to a semiconductor element at a front surface of a substrate and bonding a transparent substrate including at least a colored layer at a back surface of the substrate.

Neither Salerno's transmissive active matrix display embodiments (e.g., Fig. 37) nor Salerno's electroluminescent active matrix display embodiments (e.g., Fig. 47) describe or suggest the recited limitations of claim 12. Referring to the transmissive active matrix display embodiments, Salerno does not describe or suggest that light source 1000, which is referred to by

the Examiner as a light emitting element in page 7 of the Office Action, is “electrically connected to the semiconductor element at a front surface of a first substrate,” as claimed. Light source 1000 is not described as being electrically connected to the transistor 1146 or pixel element 1148, which the Examiner equates to the recited semiconductor element, at a front side of oxide layer 1142, which the Examiner equates to the recited substrate. Referring to the electroluminescent active matrix display embodiments, Salerno does not describe or suggest that a transparent substrate comprising at least a colored layer is bonded at a *back* surface of the recited substrate. Moreover, as discussed above, Salerno provides no suggestion or motivation to combine the described transmissive active matrix display structures and processes with the described electroluminescent active matrix display structures and processes.

Accordingly, Salerno does not describe or suggest forming a light emitting element that is electrically connected to a semiconductor element at a front surface of a substrate and bonding a transparent substrate including at least a colored layer at a back surface of the substrate.

Yoneda does not overcome the deficiencies of Salerno. For at least the reasons discussed above in reference to claim 11, Yoneda does not describe or suggest bonding a transparent substrate including at least a colored layer at a back surface of the recited substrate.

For at least the reasons described above, applicants request withdrawal of the rejection of claim 12 and its dependent claims 19 and 20.

Dependent claim 17, which depends from claim 12, has been rejected as being unpatentable over Salerno in view of Yoneda and further in view of Bando. For at least the same reasons described above in reference to claim 12, neither Yoneda, Salerno, nor any combination of the two describes or suggests forming a light emitting element that is electrically connected to a semiconductor element at a front surface of a substrate and bonding a transparent substrate including at least a colored layer at a back surface of the substrate. Bando is similarly deficient.

Accordingly, applicants request reconsideration and withdrawal of the rejection of claim 17.

New independent claims 47 and 50 have been added. Claims 47 and 50 correspond to claims 11 and 12, prior to the current amendment, with the exception that claims 47 and 50 recite

Applicant : Shunpei YAMAZAKI et al.
Serial No. : 09/841,156
Filed : April 25, 2001
Page : 16 of 16

Attorney's Docket No.: 12732-033001 / US4868

“a step of bonding an antireflection film” rather than reciting “a step of bonding an antireflection film or a polarization plate”. Claims 47 and 50 are patentable over the cited prior art for at least the reason that none of the cited prior art describes or suggests the bonding of an antireflection film in the recited method.

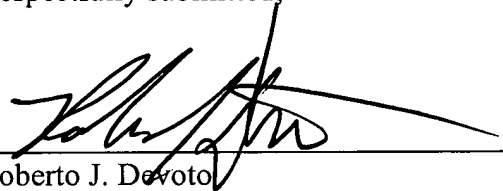
Applicants submit that all claims are in condition for allowance.

Enclosed is a \$110 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: _____

6/1/07



Roberto J. Devoto
Reg. No. 55,108

Fish & Richardson P.C.
1425 K Street, N.W.
11th Floor
Washington, DC 20005-3500
Telephone: (202) 783-5070
Facsimile: (202) 783-2331